Stucco and Clay in the Decoration of the Monumental Building of Old Nisa

STUCCO AND CLAY IN THE DECORATION OF THE MONUMENTAL BUILDINGS OF OLD NISA

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Résumé – Contrairement au décor architectural en terre cuite et à la sculpture en argile crue, la production de stucs dans l'ancienne Nisa n'a été que marginalement étudiée. Ceci est essentiellement dû à la rareté des représentations figurées. Cependant, des fouilles récentes ont permis de découvrir quelques fragments de sculptures en stuc et en argile, en même temps que des moules doubles en mortier de gypse qui éclairent d'un nouveau jour les techniques de fabrication des sculptures. Le procédé de fabrication d'une sculpture est identique pour les deux types de matériaux puisque le modelage de la figure se fait grâce à l'application successive de couches d'argile et de stuc (ou les deux), de plus en plus fines et pures. De plus, pour les deux types de matériaux, sont attestés à la fois le simple modelage à la main et l'usage de moules.

Mots-clés – Stucs parthes, ancienne Nisa, sculpture parthe, décor architectural

Abstract – Unlike the terracotta decoration and the clay sculpture, the stucco production in Old Nisa has been only marginally studied. This is mainly due to the scarcity of figured materials available. Anyhow, recent excavations [1] have unearthed some fragments of sculptures in stucco and clay, along with double-moulds in gypsum mortar that shed new light on techniques for the manufacturing of sculptures. The manufacturing process of a sculpture is similar for both materials, since the modelling of the figure occurs through the gradual application of layers of clay or stucco (or both) more and more fine and purified. Moreover, for the two materials, is attested both the simple hand modelling and the use of moulds.

Keywords – Parthian stucco, Old Nisa, Parthian scultpure, architectural decoration

ملخص – على عكس الزخرفة المعمارية في الطين المشوي ونحت الصلصال النيء، لم يدرس إنتاج الجص في نيسا القديمة إلا على نحو هامشي. وهذا عائد أساساً إلى ندرة التصاوير ذات الأشكال. غير أن حفريات حديثة أتاحت اكتشاف بضعة كسر لمنحوتات من الجص ومن الطين، وكذلك قوالب مزدوجة من ملاط من الجبس تسلط ضوءً جديداً على تقنيات صنع المنحوتات. إن طريقة صنع منحوتة متطابقة لكلا نوعي المواد إذ أن قولبة الشكل تتم بفضل التطبيق المتعاقب لطبقات من الطين والجص (أو كليهما) الرقيقة والنقية أكثر فأكثر. وعلاوة على ذلك، لكلا النوعين من المواد وثقت على حد سواء القولبة البسيطة يدوياً واستخدام القوالب.

كلمات محورية – جصيات بارثية، نيسا القديمة، نحت بارثي، زخرفة معمارية.

1. In 2007-2015 the Italian-Turkmen expedition in Old Nisa has worked in the south-western corner of the citadel. The excavation were carried out by the Centro Ricerche Archeologiche e Scavi di Torino (www.centroscavitorino.it) together with the National Dept. for Study, Research and Restoration of Monuments of the Ministry of Culture of Turkmenistan.

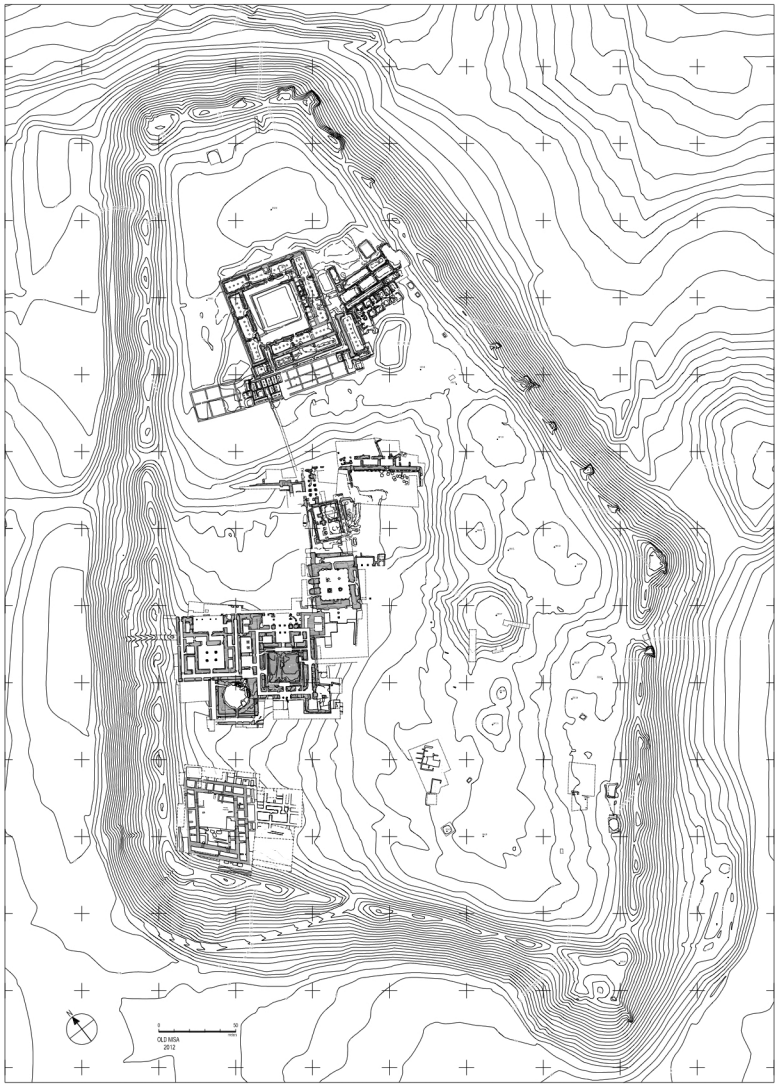

Figure 1. Old Nisa, plan © Archive Centro Ricerche Archeologiche e scavi di Torino

Old Nisa is known as one of the main and most ancient sites of Parthian culture, in those territories that formed the original core of the Arsacid kingdom (nowadays southern Turkmenistan). Although it was extensively excavated by Turkmen, Soviet and Italian expeditions, there are still many questions about the precise nature of this important settlement.

Today, Old Nisa (**fig. 1**) is generally interpreted as a great ceremonial centre dedicated to the glorification and celebration of the first Arsacids, the Parthian rulers, and its main buildings are dated between the 2nd cent. BC and the 1st-2nd cent. AD; it was then abandoned. [2]

As its ceremonial centre, Old Nisa displays sacral buildings surrounded by warehouses, functional premises and courtyards (according to the Eastern tradition of sanctuaries): so, we must keep in mind that all the material to be considered here came from official (or functional) contexts, and not from private residential structures.

2. How and when, exactly, Nisa was abandoned remains a matter to be resolved. There are no traces of a violent destruction and we cannot rule out that the abandonment —that should not have happened in a sudden— was caused by natural events (earthquake, climate change, etc.). What archaeologists have been able to ascertain is that the main buildings in the central ceremonial complex were likely emptied of their most precious furniture then stocked in the Square House.

Figure 2. Old Nisa, metope in terracotta from the Red Building © Archive Centro Ricerche Archeologiche e scavi di Torino

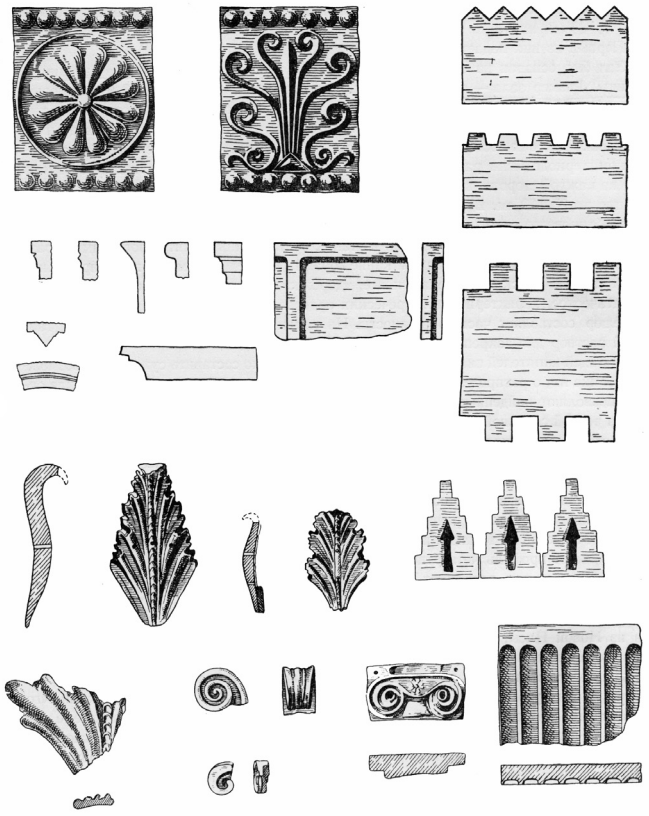

Figure 3. Architectural decorative elements in terracotta from Old Nisa (after Pugačenkova 1949, p. 222-223)

The architectural decorations from Old Nisa are studied and well known. Almost all of them were made of terracotta, but clay and stucco may also have been used more frequently than we might suppose from the scanty fragments brought to light in the archaeological excavations.

The building material employed at Nisa was mainly clay. [3] In terracotta were made, for instance, the so-called metopes (not metopes in a Greek-sense but slabs with a central symbolic motif flanked by arrow/column-like slots: the quiver, the Heracles' club, the lion's head, the Seleucid anchor, the crescent, the circle/sun), decorative slabs with a central rosette or palmette, indented bricks, stepped merlons with an arrow slot, acanthus leaves or plaques with volutes for Corinthian and Ionic assembled capitals (**fig. 2-3**).

The metopes, the indented bricks and the slabs (rosette/palmette) were likely displayed in continuous friezes on the higher parts of the walls. It is worth mentioning that no architectural element has ever been found *in situ* on the walls; therefore, we do not know how and where the friezes were arranged on the walls. And, it is important to remember that metopes and indented bricks are a slightly different size from the slabs.

The beautiful reconstructions proposed by the Soviet archaeologists of the interior of the Square Hall and the Round Hall (**fig. 4-5**) still remain a good reference point, but they are not completely free from imperfections and uncertainties. For instance, the same display of decoration on the higher part of the walls of the Round Hall needs to be reconsidered today, to see if we agree with the new proposal of an elliptical dome with sloping walls starting from their own base. [4]

3. See Pugačenkova 1949. For an overview on the building materials from the Italian excavations in Old Nisa see also Lippolis 2008, p. 216-268.
4. Masturzo 2008, p. 52-54.

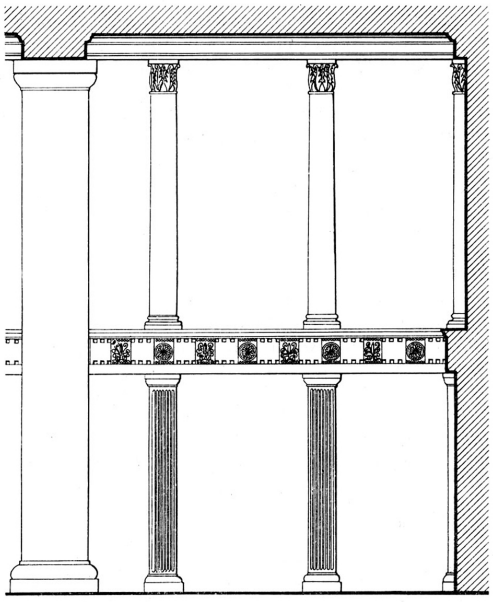

Figure 4. The Square Hall phase I
(after Pugačenkova 1958, p. 87)

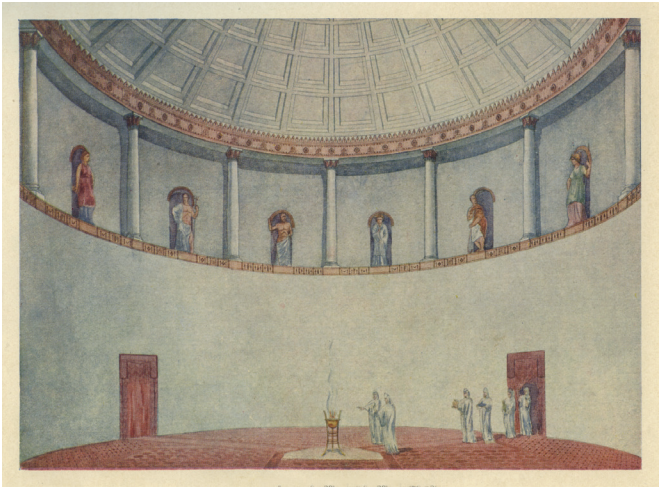

Figure 5. The Round Hall
(after Pugačenkova 1958, p. 104)

Recently, Invernizzi proposed a more rational reconstruction for the placement of the indented bricks on the walls of Nisa, divergent from the one previously advanced by Pugačenkova (which, indeed, was unsatisfactory in several aspects) and may be closer to a "Western taste". He suggested placing the indented bricks, not vertically and alternating with the rosette and palmette slabs, but horizontally —and internally to the wall with the only indented side projecting outwards— thus composing a continuous cornice with triangular or squared projections and recesses. This same indented motif is known in Parthian Assur (on the top of the frieze of the Palace façade), and in Firuzabad (on the middle part of the Sasanian Palace wall). What is really different at Nisa is the material employed, terracotta and not stucco, and consequently the technique of laying modular elements in succession, rather than the modelling *in loco* of the stucco cornice. [5]

Merlons usually crowned the top of the external walls, but in Nisa we cannot exclude that they were also displayed inside the buildings and not necessarily on the uppermost section of the walls. Again, as in the Assur Palace façade they might ran horizontally on the upper part of the walls on a continue frieze, but they could also compose panels on the walls (see, for instance, the stucco decorations at Qalʿeh-i Yazdigird). This latter interpretation could be supported by the fact that many of them still retain mortar in the central arrow slot or preserve traces of colour on the surface. It should be mentioned here that the use of colour, mostly red and black on a white or beige background, is widely attested on all these architectural elements.

The use of stone is rare in the architectural decoration of Nisa. Indeed, the material is not readily available in the area. From the oldest Parthian levels and especially from the façade of the Red Building comes a stone frieze: the bead-and-reel (astragalos) motif is western in its origin (though not unknown to the Achaemenid tradition) [6] but here it is re-interpreted and displayed not on the top of the wall but in its lower portion, like a *dado*, with obvious functional purposes of protection (**fig. 6**).

Considering, now, the use of stucco in Old Nisa, I would firstly like to point out that the terms "stucco, gypsum or plaster" include artworks made of more or less the same material, as proved by the recent analyses performed on a few samples from the Italian excavations. Moreover, it is not possible to discern significant differences in the technique of manufacturing of the stucco, gypsum and plaster artefacts coming

5. Invernizzi 2006, p. 50-55.
6. Lippolis 2005.

Figure 6. Red Building: stone dado-frieze
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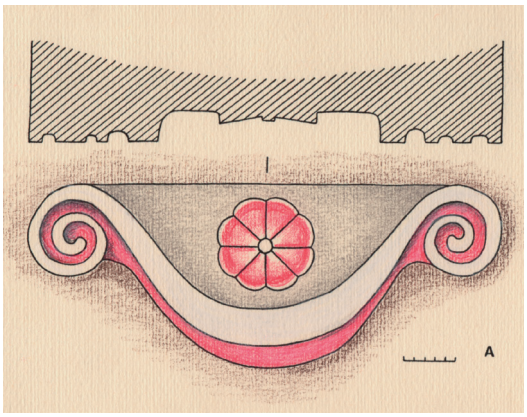

Figure 7. Ionic capital in clay from the area of the Square Hall (after PILIPKO 1996, tav. 29)

from the Nisean milieu. Generally, a mortar or a coarse gypsum plaster can be discerned at Nisa from the finer gypsum plaster ("stucco") by its greater porosity that makes it less suitable for outdoor applications.

We must keep in mind that in Central Asia the production in stucco is closely related to that in clay, which is the most widely used. The production in stucco, in fact, could be considered as a variant of the technique in clay. Even though there is still only limited archaeological evidence, we can affirm that clay is more largely attested than stucco, despite its more delicate nature, especially for sculpture and relief, until the 1st cent. BC/AD. Moreover, for later periods, most of the sculptures from Central Asia that are generally called "stuccoes" are, in fact, composed of a core of clay coated with a more or less thick layer of fine plaster: this allowed the final modelling and guaranteed a smooth base for the application of colour.

Among the oldest, if not actually the oldest examples of stuccoes from Central Asia, there are some fragments of a horse statue (or high relief) from Ai Khanum, dated by Paul Bernard to the early 2nd cent. BC. [7] From the administrative block of the city (rooms 6 and 9) also come hundreds of fragments of statues made of stucco, clay or superposed layers of the two. [8]

The different techniques attested in Ai Khanum for the stucco/clay statues are, according to Bernard:

1. in clay with an external coating of stucco;
2. a central core in stucco and the external covering of clay;
3. core and external part in stucco with an intermediate layer of clay;
4. only stucco;
5. only clay.

The combined or alternating use of the two materials —stucco and clay— means that the two techniques were interchangeable and the manufacturing process was almost the same. Sometimes, the choice of one material over another could depend on the fact that clay was easier to work and available: gypsum requires a more complex production process and stucco dries out more quickly than clay, leaving less time for the sculptor to model or retouch his work.

In Old Nisa we can find a similar variety of techniques. The "stuccoes" from Nisa most likely date to a slightly later period than the Ai Khanum statues, but not later than the mid-1st cent. BC. [9] It must be remembered that the presence of stucco architectural or sculptural decorations in Old Nisa is not supported by many findings, but the combined technique of sculpture using both stucco and clay is here attested.

7. BERNARD 1971.
8. BERNARD 1973, p. 189-193.
9. We are not considering here the later rich stucco/clay production from Central Asia, from Tacht-e Sangin or Dalverzin depe, nor the Buddhist production from Kara Tepe and Fayaz Tepe, nor the latest examples from Dilberjin, Toprak kala, Varakhsha and so on. I prefer to focus on the few sculptural remains from Old Nisa.

Architectural decorative elements in clay, refined and covered by a thin layer of stucco, were discovered during the excavation of the Square Hall, as for example Ionic (**fig. 7**) and Corinthian capitals. [10] They were made in moulds, and then refined with the covering of a thin layer of fine plaster/stucco, a suitable base for the final colouring (red, black and white/cream, mainly). The mouldings of the bases of the columns in baked bricks were also finished in stucco. [11]

Regarding the making of gypsum, stucco and plaster we should note that a large amount of mineral agglomerates, sometimes defined in the Russian literature as "anhydrite", was widespread at Nisa. From a scientific point of view, this anhydrite is anhydrous calcium sulphate ($CaSO_4$) that easily alters to the much more common hydrated form, gypsum ($CaSO_4 \cdot 2H_2O$). These two related minerals usually have an evaporitic origin and form during evaporation episodes of highly saline water.

A multi-technique scientific investigation was carried out on different "anhydrite" aggregates found in Nisa, some of which are of supposed anthropic origin, and on various artefacts such as mortar, plaster and a mould, with the aim of identifying the chemical and mineralogical composition and of obtaining information on the technology of production. For this purpose, a morphological examination together with the determination of the chemical composition was carried out by Scanning Electron Microscopy coupled with an Energy Dispersive X-Ray microanalysis (SEM-EDX), while the mineralogical composition was determined by X-Ray Powder Diffractometry (XRPD) and the thermal behaviour was tested by means of a ThermoGravimetric Analysis (TGA). [12] The microscopic evaluation showed that all the samples consisted of large crystals (with dimensions of up to about 1 mm) embedded in a finer matrix (**fig. 8-9**).

Sulphur (S), Calcium (Ca), Silicon (Si), Aluminium (Al), Magnesium (Mg), Sodium (Na), Chlorine (Cl), Iron (Fe) and Potassium (K) were detected by EDX as major and minor elements (listed in order of abundance) both in the "anhydrite" samples and in the artefacts, even if there were slight differences in the relative contents for the two groups. XRPD analysis underlined the total absence of the mineral anhydrite, instead evidencing the prevalent presence of gypsum with much smaller amounts of calcite ($CaCO_3$) and quartz (SiO_2) as main mineral phases with a relative semiquantitative percent mean abundance of 90:5:5.

10. About the fragments of Ionic capitals in clay from Nisa see Pilipko 1996, p. 43-45, pl. 29 (1980s excavations) and Pilipko 2001, p. 408, pl. I-1 (1934 Maruščenko's excavations). From the Square House Pilipko 1996 (p. 44-45, pl. 30) also reports of some unbaked clay leaves of Corinthian capitals. The leaves were moulded then assembled, following the same process as the terracotta specimens. We are still not able to determine whether a chronological relationship exists between unbaked clay and terracotta elements.
11. Pilipko 2001, p. 242.
12. Sampling and Analytical Techniques. Morphological examinations (Scanning Electron Microscopy, SEM) and elemental composition (Energy Dispersive X-ray, EDX) analyses were carried out with a SEM-VP EVO50 (Carl Zeiss AG, Deutschland) microscope coupled with INCA x-sight model 7636 (Oxford Instruments, Concorde, MA, USA) microprobe with the following operating conditions: working distance= 8-12 mm for the morphological evaluation and 8.5 mm for the chemical analysis, probe current= 200 pA, accelerating potential= 20 kV, counting time= 120 s. Natural oxides and silicates (Astimex Scientific Limited; Ontario, Canada) were acquired as standards. A cobalt standard was used for instrumental calibration and the relative abundance of the elements was calculated by the instrument software. The morphological examination was carried out in the secondary electrons (SE) mode at different magnifications on fresh fracture samples. EDX analyses were carried out in the backscattered electrons (BS) mode on polished sections at 200X magnification, by scanning rectangular areas or by spot analysis, depending on the dimensions of the crystals and of the matrix. The polished sections for the chemical analyses were obtained by encompassing the appropriate amount of samples in an epoxidic resin. The obtained sections were subjected to an abrasive treatment on silicon carbide papers with a 500 and 1,000 grit size and polished with a 6, 3 and 1 μm granulometry diamond paste on special cloth. The fresh fractures and the polished sections were then mounted on aluminium stubs using carbon tape and were covered with a coating of Au–Pd and graphite, respectively. The Au-Pd layer, approximately 15 nm thick, was deposited using a coating unit SCD 050 Sputter Coater (Bal-Tec, Scotia, NY, USA) and the graphitization (C layer about 300 nm thick) was performed by carbon rod evaporator using a coating unit IMETEC K. X-Ray Powder Diffraction (XRPD) patterns were collected using an Analytical X'Pert Pro (PANalytical B.V., Almelo, The Netherlands) equipped with an X'Celerator detector powder diffractometer using Cu Kα radiation generated at 40 kV and 40 mA. The 2θ range was from 5 to 90 °C. For the measurement, the appropriate amount of sample ground in an agate mortar was placed in a quartz sample holder and compressed with a glass slide. The X'Pert HighScore software was used for the evaluation of the diffraction patterns and the identification of the mineralogical phases. Thermogravimetric Analysis (TGA) was conducted by a SDTQ600 Thermal Analyzer (TA Instruments, New Castle, DE, USA) using a reference of aluminium oxide.

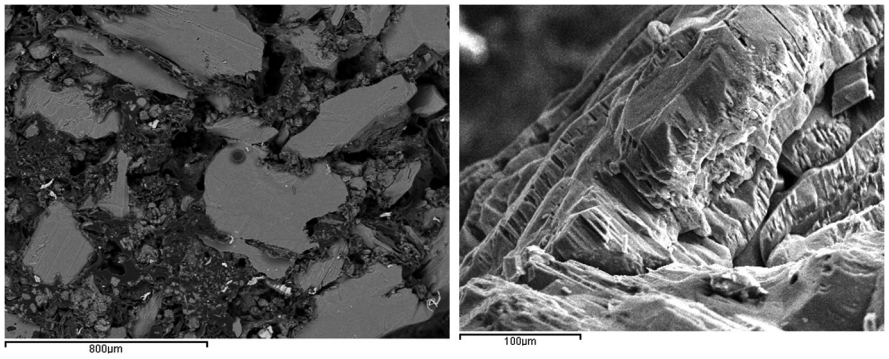

Figure 8. SEM-EDX: microscopic images of an agglomerate (left, backscattered electrons on a polished section, 60X) and of gypsum crystals (right, secondary electrons on a fracture section, 250X) (d'après Turco, Davit, Borghi *et al*. 2016)

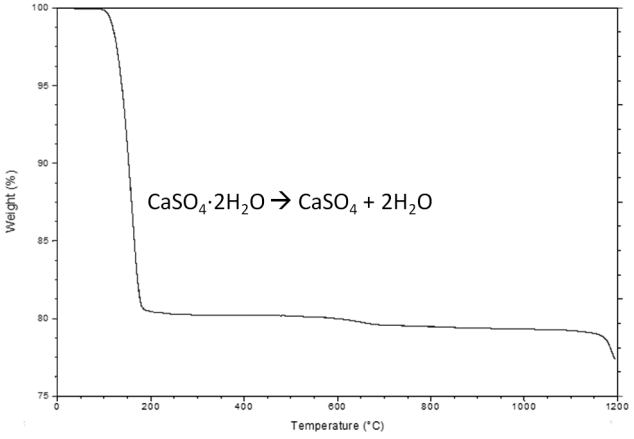

Figure 9. TGA diagram showing the % weight loss according to the increase of temperature, corresponding to the dehydration reaction transforming gypsum into anhydrite

The identification of gypsum over anhydrite was confirmed by the thermogravimetric results that showed a 20% weight loss between 35 and 200 °C related to an endothermic process revealing a two-water-molecule loss.

These overall results showed that all the samples under study are actually composed of crystals of gypsum incorporated in a fine sediment of carbonates, quartz and traces of aluminosilicates. Moreover, a petrographic examination[13] of the "anhydrite" aggregates lead to the conclusion that all the samples of this group are of a natural and not anthropic origin.

As for the artefacts, the mortar, the plaster and the mould proved to be essentially comparable both from a chemical and mineralogical point of view, allowing the conclusion that the "anhydrite" agglomerates represent the main raw material used for the production of the examined artefacts, presumably without further additions.

From a technological point of view this simplicity is plausible due to the fact that the agglomerates are perfectly suitable for the production of mortar/plaster-like materials. The production process of gypsum

13. We would like to thank Professor Alessandro Borghi for the petrographic examination of the samples.

Figure 10. Old Nisa, South-Western Building: basin in room 44 © Archive Centro Ricerche Archeologiche e scavi di Torino

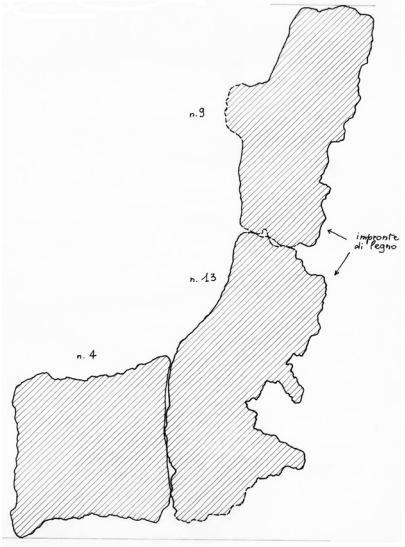

Figure 11. Gypsum fragments from the Round Hall © Archive Centro Ricerche Archeologiche e scavi di Torino

mortars/plasters consists of heating gypsum rocks to relatively low temperatures (150 to 400 °C). This heating causes gypsum to lose part of the water contained in its molecule and to form the hemihydrate $CaSO_4 \cdot 0.5H_2O$, known as Plaster of Paris. When water is added to the hemihydrate and the mixture is blended and eventually ground, the gypsum crystals reform. Without additives the mixture tends to set very quickly, so other materials can be added as a retardant of the crystal development and of the hardening of the final product. [14] In the present case, the "anhydrite" agglomerates were not pure gypsum rocks, making the use of additives pointless (some already being present in the natural agglomerates in the form of carbonates and quartz). This pyrotechnological process of production of gypsum-based material is compatible with structures revealed in the excavation at Old Nisa.

The production process of gypsum-based material may be recognized in some rooms of the recently excavated area (South-Western Area) at Old Nisa. Inside the so-called South-Western Building plastered basins were laying directly on the floor of room 44 (**fig. 10**). In the corner of two of these basins, two heaps of powdered "anhydrite" agglomerate were found. Immediately beside the basin, some raw blocks and crushed stones of this same mineral were lying on the floor of the room, clearly part of the two previous (i.e. intermediate) processing stages. It seems that here we have installations meant for the processing and production of mortar, plaster or stucco. Moreover, substantial traces of ashes and fire activities, clearly related to the same production process, were lying on the floors of rooms 45a and 45b, adjacent to room 44 where the agglomerates of anhydrite were found. [15]

Gypsum mortar was mainly employed for fixing the above-mentioned architectural elements in terracotta or for the inner core of gypsum moulds and sculptures (see below), while a finer gypsum plaster was used for the final finishing of the architectural details (wooden beams, brick columns or pillars), sculptures, wall plaster and stucco cornices.

14. Gourdin & Kingery 1975; Weiner 2010.
15. Lippolis 2013, p. 96-104, fig. 9-10, 14-16. During the last season 2015, another room (p. 96-104) in this area revealed the presence of a double fire-installation likely to be ascribed to the making of gypsum-stucco. The device is composed by three plastered basins for the water and two opposite and separate small furnaces on a platform in beaten clay and bricks. The presence nearby of a heap of "anhydride" agglomerate and ashes confirms that this device served for the manufacturing of gypsum.

a b

Figure 12. South-Western Building: gypsum-stucco fragments of statues from the pit
© Archive Centro Ricerche Archeologiche e scavi di Torino

As already mentioned, finds of stucco cornices are rather limited in Nisa. In the Round Hall, after the collapse of the upper part of the walls, several fragments of stucco decoration were probably piled at the edges of the circular room. In general, these fragments are in such deplorable conditions that it is difficult even to guess at their original shape (**fig. 11**). In any case, we can reasonably imagine that very simple moulded cornices decorated the walls of the buildings of Nisa, mainly, if not exclusively, with linear motives.

In the Round Hall, a moulded stucco cornice probably ran at a certain height above the floor, between the lower white plastered section of the wall and the purple red upper part. Indeed, in Nisa we do not find stucco cornices with the same elaborate patterns (i.e. floral patterns, meanders, triangles, waves etc.) as those in painting on the higher part of the walls.

The combined use of a coarse gypsum mixture with a finer coating is attested for the making of large moulds. The recent Italian excavations in the South-Western area brought to light about 30 fragments of this kind of mould. They were used for the making of both terracotta architectural details and life-size terracotta or clay sculptures. [16] Only the final coating of the inner imprints is in the finest gypsum plaster, while the rest of the moulds are of coarse mortar, mixed with sand and straw.

In conclusion, at Nisa the term "stucco" can be used to indicate this finest mixture, used exclusively in the final treatment of figured sculptures or architectural details and only applied on the exterior of the piece (i.e. on its surface). In this sense, the application of the stucco finishing recalls the production technique of the clay sculptures, where the inner core was made of raw clay and the external parts by an extremely fine and clear clay coating. In addition, we should mention that an external and very thin layer of fine-grained (alabastrine) gypsum plaster is sometimes applied on the clay sculptures, in order to provide a suitable surface for the application of colour.

16. Apart for a very few cases, most of the fragments whose imprint is identifiable belong to horse's legs, rendered in a naturalistic way. The use of the double moulds production technique is to be regarded as most probably imported, of Western origin rather than local. It still remains to be established what material was used for making these Nisean statue(s), whose dimensions are similar to those in clay. In a previous article, in fact, I suggested that the material used was likely to be clay (Lippolis 2011): after all, Soviet archaeologists had already observed that some parts (heads, torsos) of the clay statues were mould-made and then finished by hand. Recently, however, the excavations have yielded a tiny fragment of terracotta, probably a hoof that fits perfectly with one of the imprints. It is important to remember that this is a very small fragment and that in about a century of excavations no other fragments of terracotta statues were found in Old Nisa. On the other hand, it is true that all the architectural decorative elements were moulded. At present, we cannot rule out the possibility that the statues were made of terracotta or different materials.

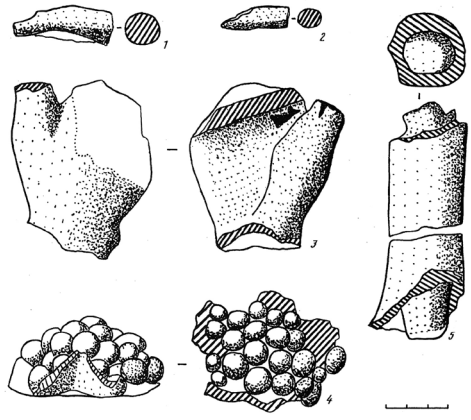

Figure 13. Stuccoes from the area of the Square Hall (after PILIPKO 2001, p. 263)

Figure 14. Red Building, southern façade: stucco eagle's head © Archive Centro Ricerche Archeologiche e scavi di Torino

This finest "plaster" coating is also visible on some fragments of stucco found in a large pit inside the South-Western Building, filled in a late stage with earth, pottery and architectural elements no longer in use (**fig. 12**). All the stucco fragments depict drapery of garments, and closely resemble similar fragments of clay statues discovered in the Round Hall. [17]

The fact that they were found in the fill of the pit could be indicative and suggest that they belong to one of the earliest building phases of Old Nisa. It should also be remembered that the few stucco fragments from the Square Hall (they include small plates with embossed edges and few fragments belonging to one or more human figures, at approximately half life size; **fig. 13**) are usually dated as being prior to its final reconstruction. [18]

On the one hand, this could lead one to think that the use of stucco in Nisa is to be dated to its earliest phases, namely between the 2nd and the 1st cent. BC. On the other hand, it is not possible to determine whether stucco and clay were used at the same time or if one technique left its place to another at a certain point of the history of the site. As already mentioned for Ai Khanum, the two materials/techniques were sometimes employed at the same time and, apparently, on the same sculpture.

We may consider, at this point, a fragmentary stucco skullcap from the Round Hall at Nisa. Reconstructed from several fragments of a thin layer of gypsum (about 1 cm) it shows fine and curved engravings reproducing the hair of a young man and part of a diadem. Some fragments in clay join perfectly to this gypsum "surface", suggesting that this "shell" of plaster served as a guide for the final modelling of the headdress. [19]

That these two techniques, in clay and in stucco, were closely related is also evident in one final example. From the Red Building's southern façade come a few fragments of a stucco sculpture depicting an eagle (**fig. 14**). It seems likely that this sculpture, which was life size, belonged to a frieze originally displayed on the walls of the main tetrastyle hall of the building. This is not the place to discuss the symbolism of the eagle among the Parthians, but it is clear that the presence of this iconography on the walls of one of the main buildings of Nisa's ceremonial complex is closely linked to the idea and propaganda of the Arsacid kings. The figure, especially its head and neck, shows a rich and plastic treatment —we can say almost

17. The original designation of this pit is still to be better understood, but it was probably linked with the water supply as suggested by the presence of four wells in the surrounding area. Later on the pit was completely filled with earth, pottery and fragments of architectural elements. At present, the excavation in the area is still in progress.
18. PILIPKO 1996, p. 77-78, tav. 49-50.
19. See BOLLATI 2008, p. 175-176, Tav. XXX: Area F: 24.

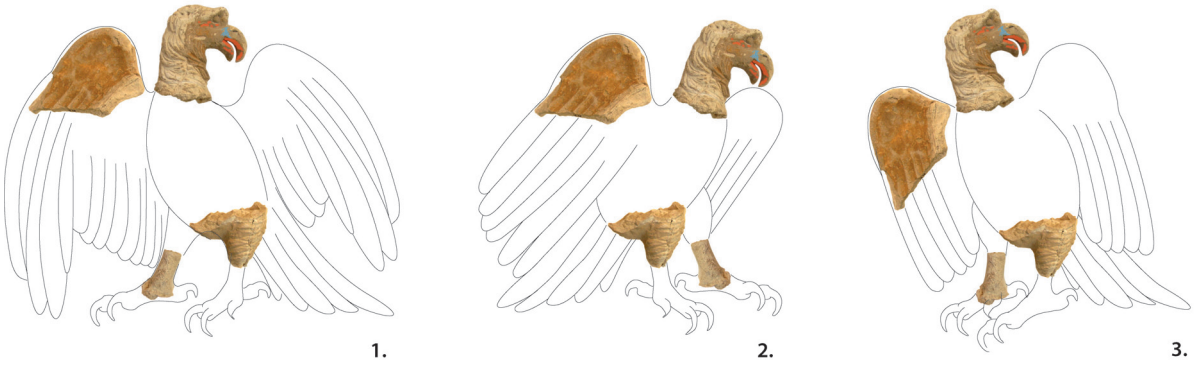

Figure 15. Red Building: proposed reconstruction of the eagle statue © C. Fossati

realistic and naturalistic— with a roughly oblique pattern rendering the plumage. Traces of colour are still recognizable on the wing (a reddish-brown paint) and on the head of the bird: the eyeball was black, as well as the inside of the nostril. Around this, traces of sky-blue colour that covered the upper part of the beak are still visible. The inner and the lower parts of the beak were covered by a bright red/rose paint. The remaining parts of the head and the neck were likely again coloured in light red/rose. The orange/brown colour now visible on the neck is the result of the fading of the original paint. In general, we may conclude that the coloured effect of the bird was quite lively and somewhat unrealistic.

Although it is obvious that this stucco depicts an almost "naturalistic" eagle, some features go back to the imaginative animalistic repertoire of the steppes, in a mixture of styles that is a *leitmotif* in the art of Parthian Nisa. At first sight, the rendering of the (too) long curved beak appears quite far from the more realistic representations of the "western" eagles. Indeed, it rather recalls some images of griffins from Central Asia. [20]

In the Nisean eagle the colour was not directly applied on the stucco surface, but on a very thin (ca. 2 mm) layer of clay covering it. The application of a thin layer of purified clay on the stucco surface is a further confirmation of how the two production techniques, for stucco and clay sculptures, were similar, the final colouring providing uniformity to the whole and making imperceptible the difference between the two materials.

The stucco eagle(s) of Nisa were not sculptured in the round and were cast by single moulds. The back of the head is hollow and traces of housings for the metal clamps that originally fixed this sculpture to the wall are still clearly recognizable.

Based on some comparisons both with the West and the East, [21] we can suggest some hypotheses for the reconstruction of the pose of the bird (**fig. 15**): proposals nn. 1 and 3 being the most plausible.

In conclusion, we can assume that the walls of the main rooms of the buildings at Nisa, besides terracotta architectural elements organized in friezes or panels, displayed simple stucco cornices and sculptured reliefs. Considering the affinity of the two production techniques, it is likely that stucco and clay were both used, side by side or even simultaneously for a single subject. The rather rare occurrence of stucco materials may be due to the fact that stucco was mainly employed at Nisa in the early phases, or to the greater ease (and availability) of using clay, or simply to the fact that once damaged, it was crushed and reused as raw material.

20. Surely, the bird of Nisa is an eagle not a gryphon, given the lack of a beard and ears typical of griffins. Nevertheless, from among many representations, it also recalls the griffin depicted on the saddle from Pazyrik (kurgan 2) with its long hooked beak of sky-blue, a pinkish head and black eyes: apparently the same colour scheme displayed on the eagle from Nisa.
21. For other images of eagles from Old Nisa and their parallels in the Western and Eastern iconographic tradition see Invernizzi 1999, p. 49-52.

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